

Appl. No. 10/668,515  
Reply to Office Action of: May 30, 2007

Attorney Docket No. 10541-1782

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I. Listing of the Claims

1. (Original) A method of measuring surfactant penetration into a filter of an air filter assembly for an intake system, the method comprising:  
providing a surfactant;  
adding illuminable material to the surfactant;  
providing a filter having at least one foam layer;  
applying the surfactant containing the illuminable material to the foam layer;  
illuminating the illuminable material in the surfactant after being applied to the foam layer;  
examining the foam layer while being illuminated; and  
determining the depth of surfactant penetration based on an illuminated area of the foam layer.
2. (Original) The method of claim 1, further comprising the step of weighing the foam layer before applying the oil surfactant containing illuminable material.
3. (Original) The method of claim 1, further comprising the step of weighing the foam layer after applying the oil surfactant containing the illuminable material.
4. (Original) The method of claim 1, wherein the step of adding the illuminable material adds a florescent dye.

- 2 -



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Appl. No. 10/668,515  
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5. (Currently Amended) The method of claim 1, wherein the step of adding illuminable material adds dye ~~at the rate~~ a concentration of at least about 0.1 grams per quart of surfactant.

6. (Original) The method of claim 1, further comprising the step of severing the foam layer into a predetermined size.

7. (Original) The method of claim 1, further comprising the step of perforating the foam layer to form perforations therein.

8. (Original) The method of claim 7, further comprising the step of severing the foam layer along perforations formed in the perforating step.

9. (Original) The method of claim 8, wherein the examining step examines the foam layer at the location at which the foam layer was severed in the severing step and wherein the determining step is based on the illuminated area at a location where the foam layer was severed.

10. (Original) The method of claim 1 further comprising the step of dispersing the surfactant containing the dye in the foam layer.

11. (Original) The method of claim 1 wherein the foam layer defines a thickness thereof and the determining step is based on the illuminated area of thickness of the foam layer.

- 3 -



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## II. Remarks

Reconsideration and re-examination of this application in view of the above amendments and the following remarks is herein respectfully requested.

After entering this amendment, claims 1-11 remain pending.

### *Claim Rejections - 35 U.S.C. § 112*

Claim 5 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the examiner indicated that while the text of the claim recited adding dye at a given rate range, the actual parameters of the claim taught adding dye at a given concentration range. Accordingly, claim 5 has been amended to express the addition of dye at a "concentration". Accordingly, it is believed that this rejection is now moot and should be withdrawn.

### *Claim Rejections - 35 U.S.C. § 102(e)*

Claims 1, 4, 10 and 11 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Published Application No. 2005/0235619, to Heinz et al. ("Heinz"). Applicant respectfully traverses this rejection since Heinz fails to teach all of the limitations of the claim.

In the present invention, an illuminable material is added to a surfactant. The surfactant, containing the illuminable material, is then applied to the foam layer of a filter. Upon illumination of the illuminable material, the

- 4 -

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Appl. No. 10/668,515  
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Attorney Docket No. 10541-1782

foal layer is examined and the depth of surfactant penetration into the foam layer is determined.

In rejecting the claims 1, 4, 10 and 11, the examiner relies upon Heinz. It is believed that this reliance is misplaced; particularly, since the florescent dye of Heinz is used in a different manner for a significantly different purpose than in the present invention.

In Heinz, the florescent material is not added so a filter so as to determine the depth of penetration of a surfactant into the filter during manufacturing. Rather, the florescent dye is provided in the Heinz filter to determine how well the filter is functioning. Specifically, the florescent dye in Heinz is used to determine how dirty the filter has become during use. Paragraph 68 of Heinz speaks to the absorbency of the florescent dye. A careful reading of the relevant portions of that paragraph shows that the referred to "absorbency" is the absorbency of the dye itself and not a reference to the dye being absorbed by the filter. In other words, it is the ability of the dye to absorb (it is noted that the dye absorbs light since it is a florescent dye) that is of concern to Heinz. As the filter becomes loaded with dust particles, its functionality decreases. The more loaded with dust particles that the filter is, the less the florescent dye is able to absorb light and the less the dye is able to glow with any significant intensity. Thus the intensity of the glowing of the dye allows one to determine if the filter is clean or dirty.

Notably, nowhere in Heinz is it mentioned that the dye is used to determine anything regarding the alkylating or silylating agents, which are provided for the purpose of passivating the surface or a layer of the filter. (See

- 5 -



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Appl. No. 10/668,515  
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Attorney Docket No. 10641-1782

Heinz paragraph [0067]) Nor is it stated that the dye is added to the alkylating or silylating agents themselves. In actuality, the dye is only stated as being provided in a possible alternative embodiment of the filter. In this regard, surface-passivation and the use of dye are done for mutually exclusive purposes, not for the enhancement or aid of one another.

The above follows from paragraph [0067] of Heinz in which it is stated that individual layers or different fibers of the filter medium are surface hydrophobed to avoid the sticking of particularly firmly adhering filtrate or dust. Thus it is seen that the hydrophobed surface is provided so as to impart a specific functional property to a surface of the filter. The florescent dye does nothing to add to surface passivation.

As recited in the claims of the present invention, the current method is not one for determining the capacity of a filter, but rather it is a method for determining the depth at which a surfactant has been provided in the overall depth of a foam layer. Nowhere in Heinz is this suggested. As noted above, the florescent dye of Heinz is provided to determine the extent to which the photo medium is loaded with dust particles, in otherwords the remaining useful capacity of the filter. In the present invention the illuminable material is not claimed as being used to determine how much filtering capacity remains. Thus, it is clear that completely different purposes are achieved by the illuminable material of the present claims and the florescent dye of Heinz.

*Claim Rejections - 35 U.S.C. §103(e)*

The remaining claims were rejected under 35 U.S.C. § 103 as being unpatentable over Heinz.

- 6 -



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